

REMARKS

This Amendment is filed in response to the Office Action dated September 17, 2003, which has a shortened statutory period set to expire December 17, 2003.

Applicant appreciates the Examiner's close reading of the Specification and the Claims.

Amendment To The Specification

Applicant has amended the Specification to correct for the typographical error in paragraph [0012]. Based on this amendment, which conforms to the Examiner's suggested correction, Applicant requests reconsideration and withdrawal of the objection to the disclosure.

Claims 9 and 32: Rewritten In Independent Form

Applicant has rewritten Claims 9 and 32 in independent form to include all of the limitations of their base claims and any intervening claims. Applicant submits that such amendments are merely restating elements that were already there by reference. Therefore, the amendments made to Claims 9 and 32 are neither narrowing nor made for reasons related to patentability. Thus, Applicant submits that the elements of Claims 9 and 32 should be entitled to a full range of equivalents.

Based on the amendments made to Claims 9 and 32, Applicant requests reconsideration and withdrawal of the objection to these claims. Claims 10-13 depend from Claim 9 and therefore are patentable for at least the reasons presented for Claim 9. Therefore, Applicant also requests reconsideration and withdrawal of the objection to Claims 10-13.

Allowed Claims 38 and 39

Applicant thanks the Examiner for passing Claims 38 and 39 to allowance without amendment. Therefore, Applicant expects that Claims 38 and 39 will not be subject to prosecution history estoppel and thus should be entitled to a full range of equivalents under the doctrine of equivalents.

Claims 1-8 Are Not Anticipated Or Rendered Obvious By The Cited Prior Art

Claim 1 recites in part,

determining a frequency provided to power the CCFL circuit based on a duty cycle of a driving waveform to the CCFL circuit.

Applicant submits that Ribarich fails to disclose or suggest these limitations. The Office Action cites Col. 6, line 43 to Col. 7, line 11 of Ribarich as teaching these limitations. This citation teaches a pre-heat mode, i.e. when the lamp filaments are being heated to their correct emission temperature. Col. 6, lines 43-45. As Ribarich teaches,

The ballast control IC enters preheat mode when VCC exceeds the UVLO positive-going threshold. HO and LO begin to oscillate at the preheat frequency with 50% duty cycle and with a dead-time which is set by the value of the external timing capacitor CT, and internal deadtime resistor, RDT.

Col. 6, lines 46-51. Of importance, nothing in this passage teaches that the frequency is based on a duty cycle. In fact, as explicitly taught by Ribarich, the preheat frequency can be programmed with timing resistor  $R_T$ , preheat resistor  $R_{PH}$ , and timing capacitor  $C_T$  in a relationship defined by Equations 5 and 6. Col. 8, lines 50-64. Applicant notes for completeness that in Ribarich the program run frequency can be programmed with timing resistor  $R_T$  and timing capacitor  $C_T$  in a relationship

defined by Equations 3 and 4. Col. 8, lines 37-48. Nothing in any of these equations or in their associated description suggests that the duty cycle of the driving waveform is important.

In contrast, as taught by Applicant in paragraph [0051] of the Specification,

if the average value of the OUTAPB signal is equal to the reference voltage VR2, then the duty cycle of the OUTAPB signal is close to 50%. As determined by the assignee of the present invention, a switching circuit with a 50% duty cycle has lower root-mean-square (RMS) currents than a similar circuit running at a smaller duty cycle. Thus, a 50% duty cycle leads to fewer I squared R losses and higher operating efficiency. Additionally, a 50% duty cycle signal, when driving the LC network (comprising inductor 106 and capacitor 107) near its resonant frequency, produces less unwanted higher order harmonic frequencies at node N2 than a driving signal at a much lower duty cycle.

Hence, the importance of determining a frequency provided to power the CCFL circuit **based on a duty cycle of a driving waveform to the CCFL circuit, as recited by Applicant in Claim 1.**

Ribarich fails to teach anything regarding nor recognize the advantages in using the duty cycle of the driving waveform in determining the frequency provided to power the CCFL circuit. Therefore, because Ribarich cannot anticipate these limitations, Applicant requests reconsideration and withdrawal of the rejection of Claim 1.

Claims 2-8 depend from Claim 1 and therefore are patentable for at least the reasons presented above for Claim 1. Based on those reasons, Applicants also request reconsideration and withdrawal of the rejection of Claims 2-8.

Claim 31 Is Not Anticipated Or Rendered Obvious By The Cited  
Prior Art

Claim 31, as amended, recites in part,  
selectively resetting a capacitance of the  
capacitor to zero at the beginning of every  
dimming cycle of the CCFL circuit, thereby  
providing a soft start on the line.

Support for this amendment can be found in the Specification,  
paragraph [0065]. Applicant submits that Ribarich fails to  
disclose or suggest these limitations. The Office Action cites  
Col. 4, lines 9-42 of Ribarich as teaching these limitations.  
This citation teaches that it is necessary for the IC to  
oscillate at a higher preheat frequency, then smoothly  
transition to a final, minimum frequency. Col. 4, lines 13-16.  
To do this, an external capacitor  $C_{PH}$  is charged linearly from  
COM to VCC. Col. 4, lines 16-19. As capacitor  $C_{PH}$  begins to  
ramp from COM to VCC-1.5 V, a switch 46 opens slowly, thereby  
slowing disconnecting pin RPH from RT. Col. 4, lines 25-28.  
This disconnecting causes the frequency to transition from the  
preheat frequency to the final running frequency. Col. 4, lines  
28-29.

However, of importance, Ribarich fails to teach that the  
capacitor is reset at the beginning of every dimming cycle of  
the CCFL circuit. Because Ribarich fails to disclose or suggest  
this feature, Applicant requests reconsideration and withdrawal  
of the rejection of Claim 31.

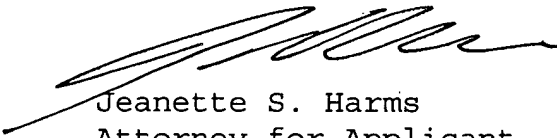
CONCLUSION

Claims 1-13, 31, 32, 38, and 39 are pending in the present application. Applicant respectfully requests allowance of these claims.

If there are any questions, please telephone the undersigned at 408-451-5907 to expedite prosecution of this case.

Respectfully submitted,

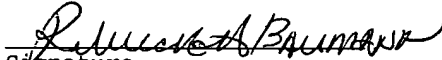
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10/17/03  
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